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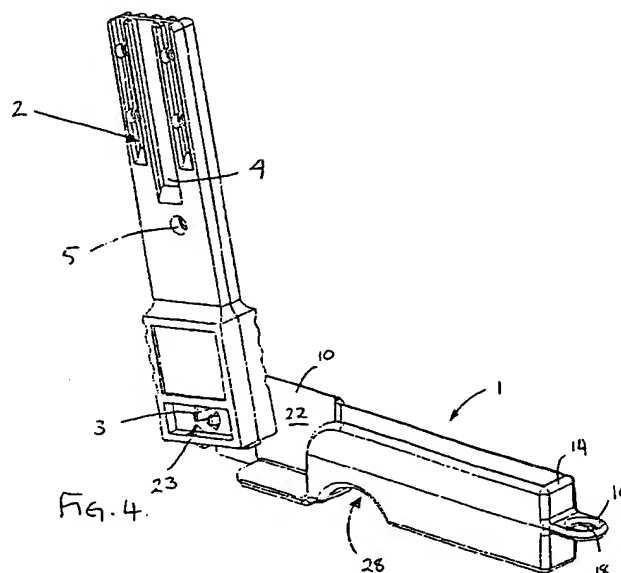
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### (54) Key-sheath

(57) A keysheath for an electricity prepayment key, comprises a sheathing portion which, in use, surrounds at least a part of the said key to protect the electrical contact or contacts thereof against damage, and means for securing the sheathing portion to the key, the key-sheath being characterised in that the means for securing the keysheath to the key is formed integrally with the

sheathing portion and is such that, when the keysheath is secured to the key, the keysheath is pivotable relative to the key, the keysheath from a position in which the part of the key bearing an electrical contact or contacts is received in the sheathing portion of the keysheath to protect the said electrical contacts to a position in which the said part of the key has moved away from the key-sheath to expose the electrical contacts of the key.



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## Description

[0001] The present invention relates to an improved key sheath for use with keys of the kind used in prepayment metering applications, in particular to a keysheath comprising a sheathing portion which, in use, surrounds at least a part of the said key to protect the electrical contact or contacts thereof against damage, and means for securing the sheathing portion to the key.

[0002] In prepayment metering a key is used to transfer data between the meter and the utility supplier. Over a period of time contamination in the form of dust, grease etc can build up on the key contacts, preventing the transfer of data from taking place. This loss or corruption of data is of considerable inconvenience to both the supplier and the end user; it takes time to correct and therefore adds significant cost to the operation. The keysheath of the invention is designed to provide protection for the key when it is not in use, quick and easy assembly of the keysheath to the key and easy operation to release the key from the sheath.

[0003] A key sheath already in existence fits like a cap over the contact area and is attached to the key by a separate tie wrap device.

[0004] In accordance with the invention, there is provided such a keysheath characterised in that the means for securing the keysheath to the key is formed integrally with the sheathing portion and is such that, when the keysheath is secured to the key, the keysheath is pivotable relative to the key from a position in which the part of the key bearing an electrical contact or contacts is received in the sheathing portion of the keysheath to protect the said electrical contacts to a position in which the said part of the key has moved away from the keysheath to expose the electrical contacts of the key.

[0005] The keysheath detailed below is designed to protect the key from this contamination thus saving time, inconvenience and cost.

[0006] A preferred embodiment of the invention will now be described in detail, by way of example, with reference to the drawings, in which:

Figure 1 is a perspective view from the rear of the keysheath of the invention;

Figure 2 is a perspective view from the front of the keysheath of Figure 1;

Figure 3 is a perspective view from the front of a key assembled with the keysheath of Figure 1, in a closed position; and

Figure 4 is a perspective view from the front of a key assembled with the keysheath of Figure 1, in an open position.

[0007] The keysheath 1 shown in the drawings comprises a single unitary moulding 10 of plastics material which is shown most clearly in Figures 1 and 2. The moulding 10 is generally elongate and of square U-shaped channel-section shape. At one end of the

moulding 10 the channel-section 12 is closed by means of a cross-wall 14 from which extends a tab 16 in which is formed an aperture or opening 18 by means of which the key sheath can be secured to a chain or cord or to a conventional key-fob or keyring.

[0008] At its end remote from the tab 16, the channel-section moulding 10 is cut away to leave a single side wall 22 of the channel section 12 intact on which is moulded an inwardly-projecting split pin construction 23 comprising a pair of projections 24 with barbs 26 formed at their free ends, separated by a small gap. The split pin construction 23 is such that it permits the keysheath 1 to be secured to the key 2 simply by pushing the two projections 24 which form the construction through a hole 3 formed in the key 2. Once this has been done, the barbs 26 on the two projections 24 prevent the keysheath 1 being dislodged from the key 2.

[0009] Part way along its length, the keysheath moulding 10 is provided with a cut-out 28 which extends across the base of the channel section 12 and part way up the sides of the channel section. This cut-out 28 allows a user to exert pressure on the key 2 to eject it from the keysheath 1 for use, as will be described in greater detail below.

[0010] At least one moulded protrusion 30 is formed on an interior wall of the keysheath moulding 10 for engagement in a circular aperture 5 formed on the key 2, to retain the key 2 in the protected position, as will be described below in relation to Figures 3 and 4.

[0011] Figures 3 and 4 show the keysheath 1 of Figures 1 and 2 mounted on an electricity prepayment key 2 of conventional form.

[0012] In Figure 3, the key 2 is received in the keysheath 1 with the portion of the key 2 carrying the electrical contacts received in the channel section 12 which extends along most of the length of the keysheath moulding 10. The key sheath 1 is secured to the key by means of the split pin construction 23 which passes through a hole 3 formed at the end of the key 1 remote from the electrical contacts. The split pin construction 23 serves not only to secure the keysheath 1 to the key 2 but also as a stub axle around which the key 2 can pivot relative to the keysheath 1. In this position, the protrusion 30 formed on the interior of the channel section side-wall snaps into a circular aperture 5 formed along the length of the key (see Figure 4) to retain the keysheath 1 in the 'closed' position around the key 2.

[0013] When the user wishes to use the key 2, it can be ejected from the keysheath 1 by applying pressure to the key 2 through the cut-out 28 in the base of the channel section moulding 12. This pressure overcomes the resistance exerted by the engagement of the protrusion 30 in the circular aperture 5 on the key 2, allowing the key 2 to pivot away from the keysheath 1 to the position shown in Figure 4 in which the electrical contacts are exposed.

[0014] The keysheath described above differs from the prior art in that it is a single unitary component, al-

lowing simple assembly. The two elements, key and keysheath can be snapped together without the need for tools. Should the need arise the two parts can easily be separated.

[0015] The design also differs from the prior art in that to open or close the assembly the key and keysheath are rotated (figure.4) relative to one another, rather than being slid together in a linear movement.

[0016] The proposed design is compact and suitable for keeping in a trouser pocket or small purse whereas the original has the tie wrap extending from one end making it uncomfortable and unsuitable for this purpose.

[0017] The keysheath does not impede the use or function of the key.

[0018] Once in the closed position the key is retained in place so that it cannot accidentally move into the open position.

#### Claims

1. A keysheath for an electricity prepayment key, the keysheath comprising a sheathing portion which, in use, surrounds at least a part of the said key to protect the electrical contact or contacts thereof against damage, and means for securing the sheathing portion to the key, the keysheath being **characterised in that** the means for securing the keysheath to the key is formed integrally with the sheathing portion and is such that, when the keysheath is secured to the key, the keysheath is pivotable relative to the key from a position in which the part of the key bearing an electrical contact or contacts is received in the sheathing portion of the keysheath to protect the said electrical contacts to a position in which the said part of the key has moved away from the keysheath to expose the electrical contacts of the key.
2. A keysheath according to claim 1 comprising a unitary moulding of plastics material.
3. A keysheath according to claim 1 or 2 in which the sheathing portion is of channel cross-section, the channel receiving the part of the key carrying the electrical contact or contacts and being provided with an aperture by means of which pressure may be exerted on the key to eject the said part from the sheathing portion of the keysheath.
4. A keysheath according to any preceding claim in which the keysheath comprises a projection which, when the key part carrying the electrical contacts is received in the sheathing portion snaps into a recess formed on the key to oppose pivoting movement of the key away from the keysheath to expose the electrical contact or contacts.

5. A keysheath according to claim 4 in which the recess is a groove formed along the length of the key.
6. A keysheath according to claim 4 in which the recess is a circular aperture formed on the key.
7. A keysheath according to any preceding claim in which the means for securing the keysheath to the key consists of a split pin construction for passing through a hole formed at the keysheath at an end of the key remote from the electrical contacts thereof.
8. A keysheath for an electricity prepayment key substantially as hereinbefore described with reference to the drawings.

